

Amendments to the Claims:

1. (Currently amended) An ANFO explosive composition comprising, as essentially the only active explosive agents, a mixture of inorganic oxidizer particles comprising ammonium nitrate particles[[,]] and an organic combustible fuel, and wherein the ANFO explosive composition includes a chemical coupling agent having an aliphatic portion and an epoxy group.
2. (Original) The explosive composition as claimed in claim 1 wherein the chemical coupling agent is selected from the group consisting of an epoxidized oil, an ester derivative of epoxidized oil, and mixtures thereof.
3. (Original) The explosive composition as claimed in claim 1 wherein the chemical coupling agent is an epoxidized vegetable oil.
4. (Withdrawn) The explosive composition as claimed in claim 1 wherein the chemical coupling agent is an epoxidized fish oil.
5. (Original) The explosive composition as claimed in claim 1 wherein the chemical coupling agent is selected from the group consisting of epoxidized soybean oil, epoxidized linseed oil and mixtures thereof.
6. (Original) The explosive composition as claimed in claim 2 wherein the chemical coupling agent contains a plurality of epoxy groups per molecule of chemical coupling agent.
7. (Original) The explosive composition as claimed in claim 1 wherein the chemical coupling agent is present in an amount from about 0.1 to about 10 wt % based on the weight of the organic combustible fuel.

8. (Original) The explosive composition as claimed in claim 3 wherein the chemical coupling agent is present in an amount from about 1 to about 4 wt % based on the weight of the organic combustible fuel.

9. (Original) The explosive composition as claimed in claim 8 wherein the organic combustible fuel is present in an amount from about 5 to about 6 wt % based on the weight of the explosive composition.

10. (Original) The explosive composition as claimed in claim 9 wherein the organic combustible fuel comprises diesel oil.

11. (Original) The explosive composition as claimed in claim 1 wherein the ammonium nitrate particles have a density above about 0.86 g/cc.

12. (Withdrawn) The explosive composition as claimed in claim 11 wherein the ammonium nitrate particles substantially comprise mini-prills.

13. (Original) The explosive composition as claimed in claims 11 wherein the density of the ammonium nitrate particles is above about 1.00 g/cc.

14. (Original) The explosive composition as claimed in claim 1 wherein the aliphatic portion has from about 14 to about 18 carbon atoms.

15. (Original) The explosive composition as claimed in claim 1 wherein the chemical coupling agent is selected so as to produce an explosive composition that has an oil separation less than about 1 %.

16. (Original) The explosive composition as claimed in claim 1 wherein the explosive composition comprises less than about 3 wt % water.

17. (Cancelled)

18. (Cancelled)

19. (Cancelled)

20. (Cancelled)

21. (Cancelled)

22. (Cancelled)

23. (Cancelled)

24. (Cancelled)

25. (Cancelled)

26. (Cancelled)

27. (Cancelled)

28. (Cancelled)

29. (Cancelled)

30. (Cancelled)

31. (Currently amended) A method for reducing oil segregation in ~~for producing an~~ ANFO explosive composition, comprising:

a) providing an ANFO explosive suitable organic combustible fuel, inorganic oxidizer particles comprising ammonium nitrate particles and a chemical coupling agent having a long chain aliphatic portion and an epoxy group;

b) combining the organic combustible fuel and the ~~ammonium nitrate particles and a chemical coupling agent to produce a liquid mixture and then combining the liquid mixture with the inorganic oxidizer particles~~ to produce the ANFO explosive composition.

32.(Original) The method as claimed in claim 31 further comprising selecting the chemical coupling agent from the group consisting of an epoxidized oil, an ester derivative of epoxidized oil, and mixtures thereof.

33.(Original) The method as claimed in claim 32 further comprising selecting epoxidized vegetable oil as the chemical coupling agent.

34.(Withdrawn) The method as claimed in claim 32 further comprising selecting epoxidized fish oil as the chemical coupling agent.

35.(Original) The method as claimed in claim 31 further comprising selecting a chemical coupling agent containing a plurality of epoxy groups per molecule of chemical coupling agent.

36.(Original) The method as claimed in claim 31 further comprising selecting a chemical coupling agent having from 4 to 6 epoxy groups per molecule of chemical coupling agent.

37.(Cancelled)

38.(Original) The method as claimed in claim 31 further comprising selecting diesel oil as the organic combustible fuel.

39.(Original) The method as claimed in claim 31 further comprising selecting ammonium nitrate particles having a density above about 0.86 g/cc as the ammonium nitrate particles.

40.(Original) The method as claimed in claim 31 wherein the ammonium nitrate particles substantially comprise particles having diameters in a range of between about 0.5 to about 4 mm.

41. (Previously amended) The method as claimed in claim 31 wherein the ammonium nitrate particles substantially comprise particles having diameters in a range of between about 0.5 to about 1.5 mm.

42. (Original) The method as claimed in claim 31 further comprising selecting ammonium nitrate particles having a density above about 1.00 g/cc as the ammonium nitrate particles.

43. (Original) The method as claimed in claim 31 further comprising selecting a compound having an aliphatic portion with from about 14 to about 18 carbon atoms as the chemical coupling agent.

44. (Original) The method as claimed in claim 31 further comprising combining a sufficient amount of chemical coupling agent in the ANFO explosive composition such that the ANFO explosive composition has an oil separation less than about 1 %.

45. (withdrawn) The explosive composition as claimed in claim 1 wherein the inorganic oxidizer particles and the organic combustible fuel are present in a weight ratio of about 94 to 6.

46. (withdrawn) The method as claimed in claim 31 wherein step (a) comprises providing the inorganic oxidizer particles and the organic combustible fuel in a weight ratio of about 94 to 6.

47. (New) The explosive composition as claimed in claim 1 wherein the inorganic oxidizer particles and the organic combustible fuel are present in a weight ratio of about 94 to 6 and wherein the chemical coupling agent is selected from the group consisting of an epoxidized oil, an ester derivative of epoxidized oil, and mixtures thereof.

48. (new) The method as claimed in claim 31 wherein step (a) comprises selecting at least one of fuel oil, heating oil, diesel fuel, jet fuel, kerosene, mineral oil, corn oil, saturated fatty acids and an alcohol as the organic combustible fuel.

Appl. No. 10/646,930
Amdt. Dated December 11, 2006
Reply to Office action of August 18, 2006

49. (new) The method as claimed in claim 31 wherein step (a) comprises selecting diesel fuel as the organic combustible fuel.